Name: Notes

SM275 · Mathematical Methods for Economics — Fall 2019 · Uhan

Quiz 6 – 9 October 2019

Problem	Weight	Score
1	1	
2	2	
3	1	
Total		/ 40

Instructions. You have 15 minutes to complete this quiz. You may not use your calculator. You may not use any other materials (e.g., notes, homework, books).

Show all your work. To receive full credit, your solutions must be completely correct, sufficiently justified, and easy to follow.

Problem 1. Write the augmented matrix for the system of linear equations below.

$$\begin{aligned} x + 2y + 3z &= 4 \\ 2x + y &= 2 \\ 5x + y - 3z &= 2 \end{aligned}$$

- The problems on this quiz are derived from textbook problem 3.2e, assigned for homework.
- If you redo these quiz problems, take a look at the solutions for textbook problem 3.2e to check your work.

Problem 2. Find the RREF of $\begin{bmatrix} 1 & 2 & 3 & 4 \\ 2 & 1 & 0 & 2 \\ 5 & 1 & -3 & 2 \end{bmatrix}$.

Problem 3. Suppose the RREF of an augmented matrix of a system of linear equations is

$$\begin{bmatrix} 1 & 0 & -1 & 0 \\ 0 & 1 & 2 & 2 \\ 0 & 0 & 0 & 0 \end{bmatrix}.$$

Assume the first three columns correspond to variables x, y, and z, respectively. What are the solutions of this system? Write your solutions in vector form.

- Recall from Lesson 12 – to find all solutions from RREF:
  - Find the leading variables and free variables
  - Solve for the leading variables in terms of the free variables
- Take a look at Examples 9 and 11 in Lesson 12 for examples of how to put a solution into vector form.